NAVAL EDUCATION AND TRAINING PROGRAM
MANAGEMENT SUPPORT ACTIVITY
PENSACOLA, FLORIDA 32509-5000

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Specific Instructions and Errata for
Navy Electricity and Electronics Training Series (NEETS)
Module 8 - Introduction to Amplifiers (TRAMAN)
NAVEDTRA 172-08-00-82

1. Make the following changes to the subject TRAMAN:

Page	Change
1-22	In the left column, delete last paragraph and replace with the following: **This phase splitter is actually a single transistor combining the qualities of the common-emitter and common-collector configurations. The output signals are equal in amplitude of the input signal, but are 180° out of phase from each other.**
1-23	Replace page with the new page 1-23 that is provided.
1-24	Replace page with the new page 1-24 that is provided.
1-26	Replace answer box with the new answer box provided below.

ANSWERS TO QUESTTONS Q30. THROUGH Q33.

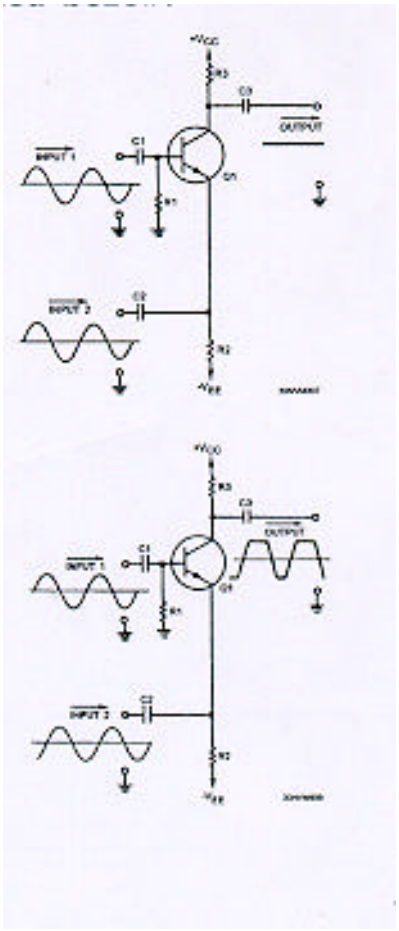
A30. A phase splitter is used to provide the input signals to a push-pull splitter.

A31. A push-pull amplifier is used when high power output and good fidelity are needed.

A32. A push-pull amplifier provides more gain than a single transistor amplifier.

A33. Class A, Class AB or Class B operation.

Page	Change
1-32	In the last line in the left column, make pen and ink change to add "class AB." Last sentence should read "Push-pull amplifiers can be operated class A, class AB, or class B."
3-28	In the left column under "Compute the current through R1 (I_{R1})" Make pen and ink change to the second equation. Should read "1k?" vice "k?."
3-41	In the right column, replace the art in the second and third figures on the page with the art provided below.



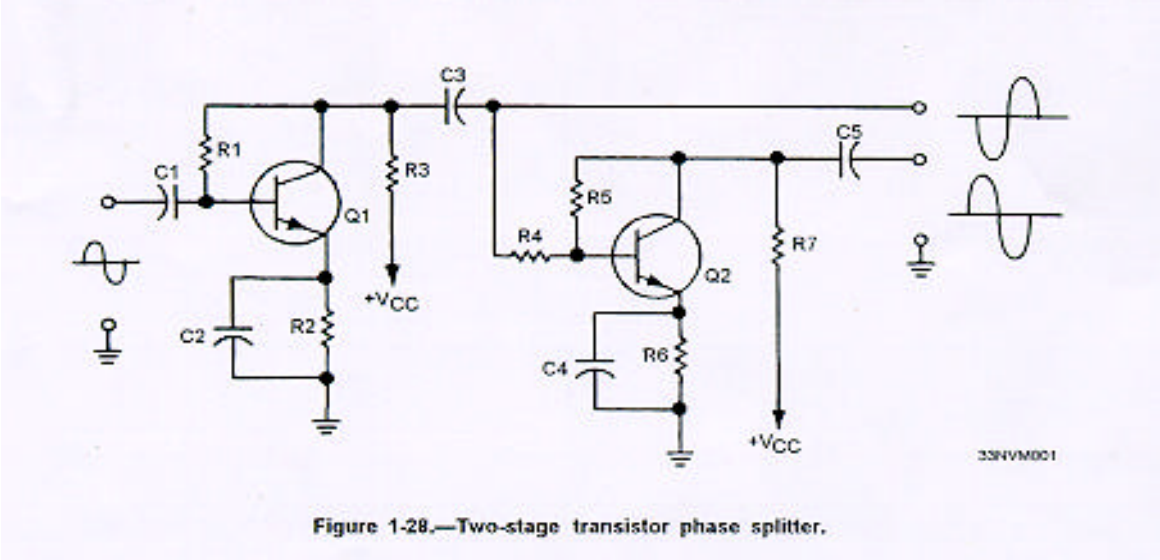


Figure 1-28.—Two-stage transistor phase splitter.

output signals are equal in amplitude with each other but larger than the input signal.

Q29. What is a phase splitter?

PUSH-PULL AMPLIFERS

One use of phase splitters is to provide input signals to a single-stage amplifier that uses two transistors. The transistors are configured in such a way that the two outputs, 180° out of phase with each other, combine. This allows more gain than one transistor could supply by itself. This "push-pull" amplifier is used where high power output and good fidelity are needed: receiver output stages, public address amplifiers, and AM modulators, for example.

The circuit shown in figure 1-29 is a class A transistor push-pull amplifier, but class AB or class B operations can be used. Class operations were discussed in an earlier topic.

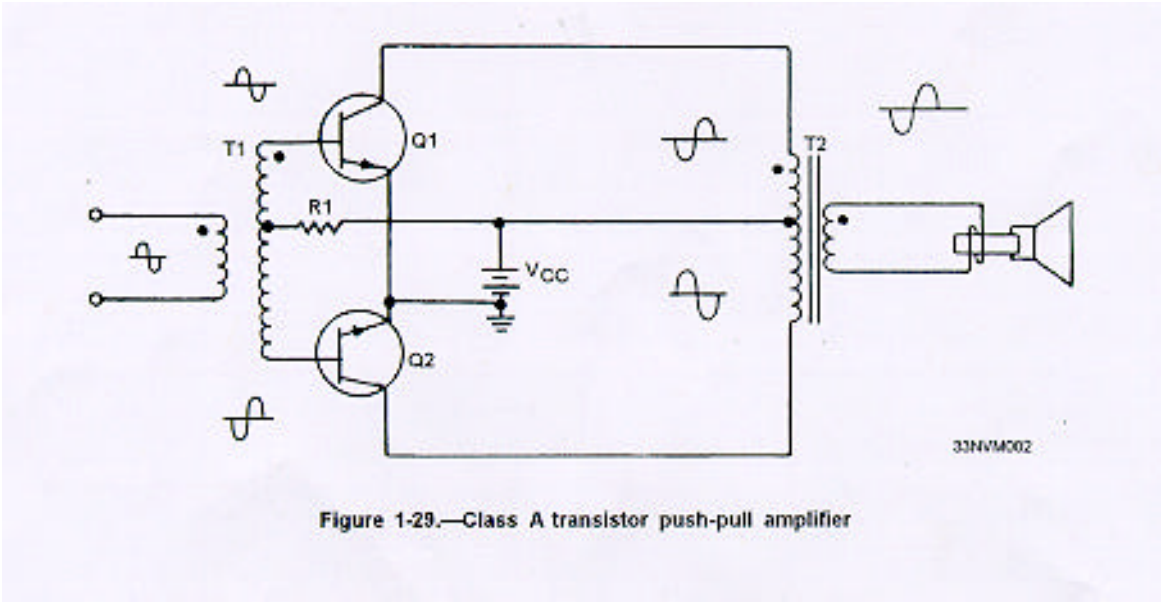


Figure 1-29.—Class A transistor push-pull amplifier

The phase splitter for this amplifier is the transformer T1, although one of the phase splitters shown earlier in this topic could be used. R1 provides the proper bias for Q1 and Q2. The tapped secondary of T1 develops the two input signals for the bases of Q1 and Q2. Half of the original input signal will be amplified by Q-1, the other half by Q-2. T2 combines (couples) the amplified output signal to the speaker and provides impedance matching.

Q30. What is one used for a splitter?

Q31. What is a common use for a push-pull amplifier?

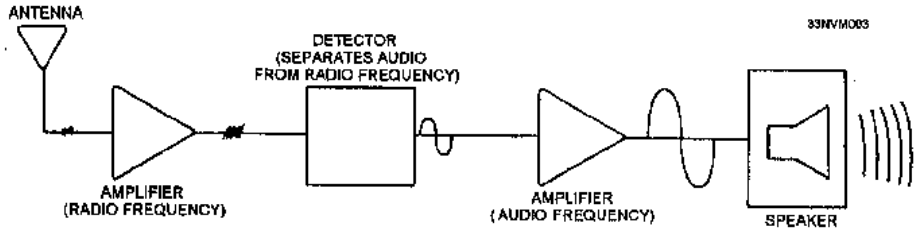
Q32. What is the advantage of a push-pull amplifier?

Q33. What class of operation can be used with a push-pull amplifier to provide good fidelity output signals?

SUMMARY

This topic has presented some general information that applies to all amplifiers, as well **as** some specific information about transistor and audio amplifiers. All of this information will be useful to you in the next topic of this module and in your future studies of electronics.

An AMPLIFIER is a device that enables an input signal to control an output signal. The output signal will have some (or all) of the characteristics of the input signal but will generally be larger than the input signal in terms of voltage, current, or power. A basic line diagram of an amplifier is shown below.



ANSWER TO QUESTION Q29.

A29. A device that provides two output signals that differ in phase from a single input signal.